

SECTION A: Multiple-choice questions

Specific instructions to students

- A correct answer scores 1 mark, and an incorrect answer scores 0.
- Marks are not deducted for incorrect answers.
- No marks are given if more than one letter is shaded in the answer box.
- Choose the alternative that is **most correct** or that **best answers** the question and mark your choice on the multiple-choice answer section as shown in the example below.

1 ☐ A ☐ B ☐ C ☒ D



- Use pencil only.

AREA OF STUDY 1: Learning

QUESTION 1

Learning is defined as

- A an active information processing system.
- B a brief change in behaviour due to interaction with the environment.
- C a relatively permanent change in behaviour that occurs as a result of experience.
- D a change in behaviour that always occurs intentionally.

QUESTION 2

Which of the following is an example of maturation?

- A thinking
- B crawling
- C blinking
- D eating

QUESTION 3

Which of the following behaviours is **not** a reflex action?

- A blinking your eyes
- B pulling your hand off a hot stove
- C salivating
- D laughing

QUESTION 4

The cerebellum is involved in learning how to improve skills. Which sort of skills does it specialise in improving?

- A motor
- B sensory
- C cognitive
- D visual

QUESTION 5

The gap that exists between two neurons is known as the _____.

- A axon
- B sinus
- C synapse
- D dendrite

QUESTION 6

Which of the following statements regarding learning is true?

- A There is a change in neurons when learning takes place.
- B Neurons are not affected by learning.
- C Neurons only change temporarily when learning takes place.
- D The number of neurons decreases when learning occurs.

QUESTION 7

Which of the following neurotransmitters are most important for learning and memory?

- A dopamine
- B serotonin
- C acetylcholine
- D synapse

ONE ANSWER PER LINE					USE PENCIL ONLY				
1	<input type="checkbox"/> A	<input type="checkbox"/> B	<input checked="" type="checkbox"/> C	<input type="checkbox"/> D	5	<input type="checkbox"/> A	<input type="checkbox"/> B	<input checked="" type="checkbox"/> C	<input type="checkbox"/> D
2	<input type="checkbox"/> A	<input checked="" type="checkbox"/> B	<input type="checkbox"/> C	<input type="checkbox"/> D	6	<input checked="" type="checkbox"/> A	<input type="checkbox"/> B	<input type="checkbox"/> C	<input type="checkbox"/> D
3	<input type="checkbox"/> A	<input type="checkbox"/> B	<input type="checkbox"/> C	<input checked="" type="checkbox"/> D	7	<input type="checkbox"/> A	<input type="checkbox"/> B	<input checked="" type="checkbox"/> C	<input type="checkbox"/> D
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QUESTION 8

During what stage of the lifespan is the brain most able to learn new skills through experience?

- A adulthood
- B early childhood
- C old age
- D all are the same

QUESTION 9

Which of the following brain imaging techniques would be best at identifying areas of the brain involved in learning?

- A EEG
- B fMRI
- C CT
- D MRI

QUESTION 10

Which areas of the brain would most likely be activated when learning to focus on visual stimuli?

- A the occipital lobe
- B the frontal lobe
- C the parietal lobe
- D the corpus callosum

QUESTION 11

Which of the following statements regarding brain plasticity is **false**?

- A Plasticity depends on environmental factors as well as biological ones.
- B Plasticity depends on critical periods in brain development.
- C Young children are more likely to experience adaptive plasticity than adults.
- D Plasticity cannot occur after 18 years of age.

Questions 12 and 13 relate to the following scenario.

Jodi's teacher informed her that she needed to conduct a study for her upcoming ERA on the topic of Learning. Jodi decided the best way to select participants would be to sample them at random from her year level.

QUESTION 12

Which of the following methods would **not** be suitable if Jodi wished to use random sampling?


- A drawing names out of a hat
- B getting a list of people in her year level and selecting every fourth person

- C standing at the library and surveying the first 20 people that arrive
- D writing student names on lotto balls and then selecting a ball

QUESTION 13

What is one major limitation of sampling participants at random?

- A It can be a very expensive method.
- B It is very biased.
- C The participant selection process can be time-consuming.
- D The sample may not be representative of the population.

ONE ANSWER PER LINE					USE PENCIL ONLY 				
8	<input type="checkbox"/> A	<input checked="" type="checkbox"/> B	<input type="checkbox"/> C	<input type="checkbox"/> D	11	<input type="checkbox"/> A	<input type="checkbox"/> B	<input type="checkbox"/> C	<input checked="" type="checkbox"/> D
9	<input type="checkbox"/> A	<input checked="" type="checkbox"/> B	<input type="checkbox"/> C	<input type="checkbox"/> D	12	<input type="checkbox"/> A	<input type="checkbox"/> B	<input checked="" type="checkbox"/> C	<input type="checkbox"/> D
10	<input checked="" type="checkbox"/> A	<input type="checkbox"/> B	<input type="checkbox"/> C	<input type="checkbox"/> D	13	<input type="checkbox"/> A	<input type="checkbox"/> B	<input type="checkbox"/> C	<input checked="" type="checkbox"/> D

SECTION B: Short answer questions

Specific instructions to students

- Answer all questions in the spaces provided.

AREA OF STUDY 1: Learning

QUESTION 1

- a What is a fixed action pattern? Provide one example.

Answer:

A fixed action pattern is a naturally occurring response that is produced in an identical fashion by every member of a species to a particular environmental stimuli. An example is salmon swimming upstream to spawn.

- b What distinguishes a fixed action pattern from a reflex action?

Answer:

A fixed action pattern is a more complex behaviour than a reflex and is only found in lower-order species.

- c Why is a fixed action pattern not considered a learned behaviour?

Answer:

It occurs naturally, without anyone teaching them how to produce the behaviour.

2 + 1 + 1 = 4 marks

QUESTION 2

- a Define the term 'maturation'.

Answer:

Maturation refers to behaviour that appears in an orderly sequence and is reliant on development of the nervous system.

- b Explain why maturation must occur in an orderly sequence.

Answer:

It must occur in order as the muscles and physical structures need time to grow and strengthen.

1 + 1 = 2 marks

QUESTION 3

- a What is a neurotransmitter?

Answer:

A neurotransmitter is a chemical substance released by a neuron that excites or inhibits certain behaviours.

- b Explain how neurotransmitters allow neurons to communicate.

Answer:

Neurotransmitters are released by the synaptic knob or synaptic button. The neurotransmitters then cross the synapse until they are picked up by the dendrite of another neuron.

1 + 2 = 3 marks

QUESTION 4

- a What does the term 'plasticity of the brain' refer to?

Answer:

The ability of the neurons in the brain to change and adapt with new experiences.

- b What is the difference between developmental plasticity and adaptive plasticity?

Answer:

Developmental plasticity is part of normal brain development where the brain begins to process information and adapt to new experiences. Adaptive plasticity is where the brain compensates for lost functions to try to maximise the potential of healthy brain regions.

1 + 2 = 3 marks

QUESTION 5

Research has shown that when learning a task that requires multiple areas of the brain to work together, the brain learns to activate both areas simultaneously when presented with the challenge again. This is because a memory trace has formed.

1 mark

QUESTION 6

- a What is the name given to the moral principles that govern psychological research?

Answer:

Ethics or ethical guidelines.

- b Why are they important to psychological research?

Answer:

They protect the welfare of participants used in psychological research and experimentation.

1 + 1 = 2 marks